



Sustainable and Integrated Water Resource Management in Gediz River Basin in Turkey

Part I: Project Information

GEF ID

10732

Project Type

MSP

Type of Trust Fund

GET

CBIT/NGI

CBIT No

NGI No

Project Title

Sustainable and Integrated Water Resource Management in Gediz River Basin in Turkey

Countries

Turkey

Agency(ies)

FAO

Other Executing Partner(s)

Ministry of Agriculture and Forestry (MoAF); General Directorate of Water Management (GDWM)

Executing Partner Type

Government

GEF Focal Area

Multi Focal Area

Taxonomy

Land Degradation Neutrality, Land Degradation, Focal Areas, Land Productivity, Land Cover and Land cover change, Carbon stocks above or below ground, Sustainable Land Management, Integrated and Cross-sectoral approach, Restoration and Rehabilitation of Degraded Lands, Sustainable Agriculture, Sustainable Forest, Community-Based Natural Resource Management, Improved Soil and Water Management Techniques, Biodiversity, Protected Areas and Landscapes, Productive Seascapes, Productive Landscapes, Community Based Natural Resource Mngt, Mainstreaming, Agriculture and agrobiodiversity, Gender Mainstreaming,

Gender Equality, Beneficiaries, Women groups, Gender-sensitive indicators, Sex-disaggregated indicators, Gender results areas, Knowledge Generation and Exchange, Awareness Raising, Capacity Development, Capacity, Knowledge and Research, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Local Communities, Stakeholders, Private Sector, Individuals/Entrepreneurs, Civil Society, Academia, Community Based Organization, Non-Governmental Organization, Communications, Behavior change, Education, Enabling Activities, Knowledge Exchange, Learning, Theory of change

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 0

Duration

36 In Months

Agency Fee(\$)

108,598.00

Submission Date

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
BD-1-1	GET	627,011.00	3,750,000.00
LD-2-5	GET	516,128.00	3,122,500.00
Total Project Cost (\$)		1,143,139.00	6,872,500.00

B. Indicative Project description summary

Project Objective

To promote Integrated Natural Resource Management (INRM) and mainstream Biodiversity Conservation in the Gediz River Basin with a focus on the sustainable management of land and water resources.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
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Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
1. Enhancing collaborative management of the Gediz River Basin (GRB).	Technical Assistance	<p>1.1 Enabling environment to support the implementation of best practices in river basin management and biodiversity conservation aligned with the existent Gediz River Basin Management Plan (RBMP).</p> <p><u>Indicators:</u></p> <p>- <i>Percent of district municipalities in the basin that adopt community-based resource management plans</i></p> <p>- <i>Number of actors (tracked by gender and youth) that participate in decision-making processes.</i></p> <p>- <i>Number of policies/decisions made/revised for biodiversity mainstreaming (harnessing biodiversity for sustainable agriculture).</i></p> <p>- <i>Data from the water monitoring system assisting the decision-making process.</i></p> <p>- <i>Area of landscapes under improved management to benefit biodiversity (as measured by the METT indicator[1]).</i></p> <p>- <i>At least 200 trained staff and stakeholder.</i></p> <p>[1] Targeted hectares under this indicator consider the Protected Area of the Gediz Delta (International RAMSAR site). The activities under component 1 will include considerations to this protected area, specially those considered in the GRMP. This indicator will be measured with METT considering the questions; 21, 21a, 24, 24, 24a, 24b, 24c</p>	<p>1.1.1. Governance mechanisms (including incentives) developed and a road map provided to support community-based management and decision making at the basin and sub-basin level.</p> <p>1.1.2. Gediz River Natural Capital Assessed, and scenarios for the incorporation of national capital into policy planning developed.</p> <p>1.1.3 Hydro Economic Model developed for the GRB to strengthen the National Water Information System to support decision-making.</p>	GE T	477,802.00	2,811,477.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
2. Enhanced sustainable land-use practices and integrated natural resource management.	Investment	<p>2.1 SLM practices upscaled and promoted to avoid and reduce land degradation and to restore ecosystem services and biodiversity in the river basin.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> - Number of hectares of land restored with project resources, with a target of 450 under different types of land cover. - Number of hectares under SLM with project resources, with a target of 250 ha under different land uses, integrating biodiversity (Core Indicator 4.1). - At least 100,505 metric tons of CO₂eq mitigated (Core Indicator 6) - Funds invested to upscale land restoration, SLM practices while conserving biodiversity in different land uses. - Riparian zone landscape restoration handbook. - Trained national officers on implementation of land restoration and SLM practices (15 ministerial staff, 15 provincial / extension level staff and 20 smallholders) - Increased Population of Targeted Species (Target to be defined during project preparation). 	<p>2.1.1 Landscape restoration activities including the integration of biodiversity in supporting key ecosystems demonstrated across different land covers to improve the provision of ecosystem services, including:</p> <p>(i) At least 250 ha of landscape connectivity both structural and functional created in degraded riparian zone-habitats (e.g. green belt application to reduce the negative effects of surface flow and erosion control with the plant species) inside three different sub-basins. (Core Indicator 3.2).</p>	GE T	477,802.00	2,811,477.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
3. Monitoring, evaluation and dissemination of best practices.	Technical Assistance	<p>3.1. Project implementation based on RBMP and lessons learned/good practices documented and disseminated.</p> <p><i>Indicators:</i></p> <p>- <i>A rigorous monitoring program for the river basin.</i></p> <p>- <i>Indicators of environmental impacts, biological assets and socio-economic benefits monitored and analysed, disaggregated by gender.</i></p> <p>- <i>Number of best practices and experience of demonstrations disseminated .</i></p> <p>- <i>Number of trained farmers (150, 80 being female)</i></p>	<p>3.1.1 A monitoring system developed for the restored lands within the framework of national LDN and CBD commitments.</p> <p>3.1.2. Integrated monitoring and evaluation system for the project applied.</p> <p>3.1.3 Final evaluation conducted and informing replication strategies.</p> <p>3.1.4 Knowledge tools and information materials for SLM and integration of biodiversity into land-use plans developed and disseminated based on best practices.</p>	GE T	83,615.00	624,773.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
				Sub Total (\$)	1,039,219.00	6,247,727.00
Project Management Cost (PMC)						
		GET	103,920.00		624,773.00	
		Sub Total(\$)	103,920.00		624,773.00	
		Total Project Cost(\$)	1,143,139.00		6,872,500.00	

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Ministry of Agriculture and Forestry	In-kind	Recurrent expenditures	2,000,000.00
Recipient Country Government	Ministry of Agriculture and Forestry	Grant	Investment mobilized	4,300,000.00
GEF Agency	FAO	In-kind	Recurrent expenditures	572,500.00
Total Project Cost(\$)				6,872,500.00

Describe how any "Investment Mobilized" was identified

- Investment mobilized from the MAF correspond to programs and project implemented in the target region (eg. restoration activities) and resources allocated to SLM activities in the framework of the Gediz RBMP - FAO cofinancing corresponds to several projects and regular programme activities implemented under FAO Turkey Regular Program

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	GET	Turkey	Biodiversity	BD STAR Allocation	627,011	59,566	686,577.00
FAO	GET	Turkey	Land Degradation	LD STAR Allocation	516,128	49,032	565,160.00
Total GEF Resources(\$)					1,143,139.00	108,598.00	1,251,737.00

E. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount (\$)

43,162

PPG Agency Fee (\$)

4,100

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	GET	Turkey	Biodiversity	BD STAR Allocation	23,674	2,249	25,923.00
FAO	GET	Turkey	Land Degradation	LD STAR Allocation	19,488	1,851	21,339.00
Total Project Costs(\$)					43,162.00	4,100.00	47,262.00

Core Indicators

Indicator 1 Terrestrial protected areas created or under improved management for conservation and sustainable use

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
14,900.00	0.00	0.00	0.00

Indicator 1.1 Terrestrial Protected Areas Newly created

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
0.00	0.00	0.00	0.00

Name of the Protected Area	WDP A ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
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Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
14,900.00	0.00	0.00	0.00

Name of the Protected Area	WDP A ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
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Name of the Protected Area	WDA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
Akula National Park Gediz Delta	125689166884	SelectOthers	14,900.00						

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
450.00	0.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
100.00			

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
250.00			

Indicator 3.3 Area of natural grass and shrublands restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
100.00			

Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
250.00	0.00	0.00	0.00

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
250.00			

Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	100505	0	0	0

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (indirect)	0	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	100,505			
Expected metric tons of CO ₂ e (indirect)				
Anticipated start year of accounting	2021			
Duration of accounting	13			

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)				
Expected metric tons of CO ₂ e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	205			
Male	195			
Total	400	0	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Core Indicator 1: The area included under this core indicator, refers to the catchment area of the Gediz Delta Protected area. Core Indicator 3: The 450 hectares included under this indicator were determined taking into account the current government plans and priorities. This area will be divided into the restoration of 250 ha of riparian zone-habitats, 100 ha of agricultural land and 100 ha of grasslands Core Indicator 4: The 250 hectares included under this indicator were determined taking into account current government plans and priorities. They will be divided into the implementation of agroecological practices on 200 ha and rain harvesting practices on 50 ha. Core Indicator 6: The estimate of mitigated GHG emissions by the project is based on calculations using FAO's Ex-Act tool, and taking into account the results of the activities of the project. The tool with the corresponding calculations is attached to the GEF Portal. Core Indicator 11: The number of direct beneficiaries was calculated considering the number of persons who receive benefits and support from the activities of the project as follows: 200 persons receiving training as a result of the capacity building activities from outcome 1.1; 50 people (15 ministerial staff, 15 extension level staff and 20 smallholders) receiving training on SLM practices under outcome 2.1; finally, 150 farmers receiving support under outcome 3.1. This number adds up to a total of 400 beneficiaries (205 female, 195 male). During PPG, this calculation will be further refined and confirmed.

Part II. Project Justification

1a. Project Description

1. The Government of Turkey is carrying out significant efforts to sustainably manage its water resources in line with the EU Water Framework Directive (WFD).[1]¹ In this context, Turkey uses hydrological basins as the basis for the management of natural resources. As discussed below, the proposed project will support government efforts to implement key aspects of the Gediz River Basin (GRB) Management Plan developed in 2018. GEF resources will be used to strengthen the enabling environment and showcase strategic practices to induce a change in the way natural resources are currently managed in the GRB. By ensuring local stakeholders are part of the decision-making processes, the proposed project will develop a model that ensures GEF-financed interventions are accepted by project beneficiaries. As project interventions show the benefits of improved management, best practices will be disseminated to ensure the proposed models are upscaled not only to the GRB but to other basins in Turkey, leading to improvements in the status of natural resources in the country.

General background

2. River basins are used in Turkey as the main unit to manage natural resources in order to achieve sustainable development.[2]² The country uses integrated basin management to (i) protect and improve water ecosystems and other related ecosystems, (ii) and to prevent degradation by encouraging the sustainable use of water and soil resources. Integrated basin management enables different sectors and users to work together to analyze the long-term threats, to agree on interventions, and to monitor positive or negative impacts of such interventions. Turkey has 25 river basins with a total water flow of 186 billion m³. More than half of the surface flow originates from five main basins: -Firat-Dicle, East and West Black Sea, Antalya and West Mediterranean. Annually, rivers discharge 41 billion m³ of freshwater to the Black Sea and 36 billion m³ to the Mediterranean. Groundwater reserves are estimated at 14 billion m³. [3]³

3. Turkey's rivers and lakes cover an area of about 10,000 km², which represent very important inland water resources to maintain biological diversity. In studies conducted so far, 59 wetlands of national significance and 13 wetlands of local significance have been identified and 14 of them have been designated as Ramsar sites. Deltas are very important for biodiversity, especially regarding waterfowl. The deltas formed by the Meric, Gediz, Buyuk Menderes and Kucuk Menderes rivers that are flowing to the Aegean Sea and the Goksu, Seyhan, Ceyhan Deltas formed by the

respective rivers are suitable habitats for a large number and different species of waterfowl as the Anatolian plain freezes during winter. The average annual rainfall in Turkey is about 574 mm, roughly one-third of which reaches water reserves and thus contributes to the maintenance of wetlands.

4. Turkey's inland waters and marine environment generate important national and global social, economic and environmental benefits (biodiversity, carbon storage, products and other ecosystem services). Although water systems are essential for socio-economic development especially in arid and semi-arid regions where agriculture is the major industry, and despite concerted efforts at the national level, inland waters and water catchments still face several threats. River basins in most of the Eastern and Southern Mediterranean countries suffer from water scarcity due to (i) rapid demographic and economic development particularly in the coastal zone, (ii) urbanization, (iii) industrialization, (iv) tourism, and (v) an often-inefficient agricultural sector as the dominant water user. Low availability of renewable water, overexploited groundwater, pollution, inefficient infrastructure, pronounced seasonality with unfavorable demand patterns different from the seasonal supply aggravate the situation. Although collaborative and effective water resources management plays a crucial role in these areas, there are still some difficulties to support sustainable water resource management and environmentally friendly applications and practices inside the catchments.

5. According to the 11th National Development Plan (NDP) covering the period of 2019-2023,[4]⁴ the total available water resources in Turkey add up to 112 billion m³, of which 43 percent is currently used; 74 percent in irrigation, 15 percent as tap-water and 11 percent in industrial use. Turkey is listed among water-scarce countries[5]⁵ with a water potential of approximately 1,500 m³ per capita in 2013. By 2030, available water per capita is expected to decrease to 1,100 m³ and Turkey might be exposed to water scarcity. Agriculture is one of the three 'Priority Development Areas' (together with Tourism and the Defense Industry) included in the 11th NDP. In the context of natural resource management, 11th NDP centers on the axes: 'A Stable and Strong Economy?', 'Competitive Production and Efficiency?', 'Qualified People, A Strong Society?', 'Livable Cities, Sustainable Environment?'. Within the scope of conservation, development and sustainable use of water resources; plans, strategies and action plans made based on watersheds will be put into practice in integrity and Measures to prevent agricultural water pollution will be extended.

6. Similarly, Turkey's Land Degradation Neutrality Report (LDN Report) highlights the importance of applying sustainable water management practices to reduce the risk of drought and impact on livelihoods and food security. The LDN Report identifies the following drivers of land degradation in Turkey: (i) drought risk and irregular precipitation regime, (ii) extreme and inappropriate irrigation systems, (iii) overuse of fertilizers and pesticides pollute the soil and inland waters, increasing eutrophication. Fortunately, potential solutions exist, including establishing irrigation systems in rain-fed agricultural lands will facilitate increased productivity and reduced drought risk., Shift to pressurized irrigation systems and refraining from over-irrigation will prevent salinization of land.

7. According to Turkey National Water Plan[6]; Turkey's 2023 targets .reducing water consumption to 64% in agriculture, to 20% in industry, and 16% in drinking-domestic water within the scope of using the existing available water, and improving irrigated farming lands to be brought into use. Within this scope, targets foresee the provision of irrigation to a wider range of areas in agriculture through modern irrigation techniques such as pressurised irrigation system, and allocation of 72 km³ of water to irrigation works. Estimates for domestic water consumption for 2023 suggest, considering other sectorial dynamics such as population growth, urbanization, and rapidly increasing tourism sector will triple to 18 km³ from 2008 value of 6 km³. As for the industrial water demand, it is expected to increase to 22 km³ from the current value of 5 km³

8. In order to enhance the efficiency of water management under watershed-based integrated protection and controlled use principles, Protection Action Plans were prepared for all 25 river basins in Turkey between the period of 2009-2013. The list of these basins has been given in Table 1 and Figure 1. Water allocation, according to the purpose of use, is done within the scope of the management plans by taking into account the needs and water use priorities, and also by assessing surface and ground waters together.

Table 1. River basins of Turkey

No.	Name of Basin	Precipitation Area (km ²)	Annual Average Flow (km ³)	Annual Average Yield (l/s/ km ²)
1	Meri?- Ergene Basin	14,560	1,84	4
2	Marmara Basin	24,100	7,54	10,3
3	Susurluk Basin	22,399	4,23	5,5
4	Kuzey Ege Basin	10,003	1,5	4,8
5	Gediz Basin	18,000	1,54	2,9
6	K??k Menderes Basin	6,907	0,53	2,4
7	B?y?k Menderes Basin	24,976	2,97	3,6
8	Bat? Akdeniz Basin	20,953	6,97	10,4
9	Antalya Basin	19,577	11,25	17,5
10	Burdur G?ller Basin	6,374	0,26	1,3

No.	Name of Basin	Precipitation Area (km ²)	Annual Average Flow (km ³)	Annual Average Yield (l/s/ km ²)
11	Akar?ay Basin	7,605	0,33	1,9
12	Sakarya Basin	58,160	5,16	2,6
13	Bat? Karadeniz Basin	29,598	9,91	10,9
14	Ye?il?rmak Basin	36,114	6,58	5,3
15	K?z?l?rmak Basin	78,180	6,12	2,4
16	Konya Kapal? Basin	53,850	2,65	1,7
17	Do?u Akdeniz Basin	22,048	8,24	12
18	Seyhan Basin	20,450	6,79	9,7
19	Asi Basin	7,796	0,89	3,6
20	Ceyhan Basin	21,982	7,37	10,8
21	F?rat-Dicle Basin	184,918	49,91	9,0
22	Do?u Karadeniz Basin	24,077	14,93	20,7
23	?oruh Basin	19,872	7,05	11
24	Aras Basin	27,548	4,18	4,7
25	Van G?l? Basin	19,405	2,26	4
	Total	779,452	171,00	164,00

Figure 1. Distribution of the river basins of Turkey



9. Turkey's inland surface waters as well as transitional and coastal waters are affected by major modifications, such as water abstraction, water flow regulations (dams, weirs, sluices, and locks) and morphological alterations, straightening and canalization, and the disconnection of flood plains. Diffuse pollution from agriculture and livestock affects several water body categories from rivers to groundwater as well. The most important pollutants affecting water supply are nitrate contamination of groundwater supplies, nutrients that affect levels of phytoplankton in reservoirs, and microbiological contamination from animal waste. Key contaminants include nitrates, bacteria (e.g. *Escherichia coli*) and pesticides.

10. At the most basic level, three related global trends greatly exacerbate the water crisis. These trends relate to climate change, the rapid increases in population growth and economic development, all of which strongly increase water demand as well as pollution. Especially, increasing temperatures coupled with decreasing precipitation are leading to serious water stress, particularly in the southern and western parts of Turkey which includes the Gediz River Basin. This situation will be exacerbated by sharply rising demand, particularly from farmers.[7]⁷ It is projected that nearly 20% of the surface water in some basins will be lost by 2030.[8]⁸ The results of climate change will also seriously affect land use and land cover of the basins. In the Mediterranean coastal zones, the water demand is lowering the water table and leading to seawater intrusion in most coastal aquifers. On the contrary, the quantities of water that any country can economically develop, unfortunately, continue to decrease or remain limited. For the above and a variety of other reasons like climate change, improved living standards, urbanization, and industrialization, water managers have been faced with more complex and difficult problems in the early 21st century, and it is expected that coping with water problems will be harder in the future.

Climate change

11. Climate change is expected to affect vulnerable sectors in Turkey.[9],[10]¹⁰,[11]¹¹ While the annual mean temperature is expected to increase by 1.5C by 2050, precipitation is expected to decrease by 1.5mm per year. It is expected that climate change will have the following impacts (with a medium level of severity):

? Declining availability of surface waters in West Anatolia, which would affect agriculture and the water distribution network. The decreased availability of water will be most felt in Izmir, Kutahya, Manisa, which are regions targeted by this project.

? Decreased agricultural productivity in the Mediterranean and Aegean, which will impact agriculture employment and food security

? Loss of soil in southwest Anatolia and

? Forest fires in Western Anatolia, which will affect tourism and agriculture.

12. Finally, climate change is also expected to have the following additional impacts in Turkey, albeit with a lower level of severity: (i) changes of river/basin regimes across the country, (ii) soil losses/increased salinity particularly in the Mediterranean, Aegean and Black seas, (iii) disruption of marine ecosystems, and (iv) coastal erosion. A preliminary climate risk screening was carried out by FAO and is appended to the project documentation in the GEF PMIS.

(i) The global environmental problems, root causes and barriers that need to be addressed

13. The river basins of Turkey face many problems such as water scarcity, land degradation, pollution and unsustainable use of water resources. There are serious institutional, legal, social and economic drawbacks, which enhance water allocation, degradation, and environmental pollution problems as well.

Project site

14. The Gediz River Basin (GRB) is a typical case where four major drivers, climate change, water scarcity, land degradation, and pollution, need to be addressed for sustainable management of its water and land resources, including biodiversity. The basin covers about 18,000 km² and has a population of nearly 2 million people. Manisa, İzmir, Uşak, Kütahya, Denizli, Balıkesir and Aydın provinces are within the boundaries of the basin. Manisa covers the largest area among the provinces in the basin, followed by Uşak, İzmir, and Kütahya. The main water source of the basin is the Gediz River, which has a length of 275 km.[12]¹² The Gediz Basin was selected because:

- i. The basin has a River Basin Management Plan (RBMP) approved by the Water Management Coordination Committee convened under the premises of the Ministry of Agriculture and Forestry
- ii. GRB is identified as an LDN hotspot in Turkey's National Land Degradation Neutrality (LDN) Report.[13]¹³ Land degradation in the basin is due to inappropriate land use, urbanization, industrialization, tourism and particularly intensive agricultural activities. Erosion is also a serious problem, particularly on agricultural lands.
- iii. Water scarcity and pollution are the two major problems identified in the Gediz RBMP. significant problems in the basin.[14]¹⁴.[15]¹⁵ The Gediz RBMP identifies greenbelt applications, groundwater artificial recharge, and rain harvesting potential supplementary measures to support IWRM, even though these are not defined in legislation. The proposed GEF project will implement these measures at a small scale and prepare them for upscaling using co-financing resources.
- iv. GRB is very vulnerable to drought, a problem that is expected to be exacerbated by climate change.[16]¹⁶ A recent drought risk assessment using socio-economic data as well as drought hazard and drought vulnerability indices in Turkey concluded that the GRB's vulnerability to drought is very high in the west (mainly Izmir province) and high in the eastern part of the basin (Manisa province). Drought is directly correlated with municipal and agricultural water shortages, which severely affects agricultural areas.
- v. The GRB includes the entire range of prototypical water management problems in the region therefore their potential solutions could be upscaled to other basins.

15. The GRB has significant importance for Turkey from an agriculture, industry and service sector perspective so management and sustainable development of resources of the Basin is crucial. Within this context, direct discharges, wastewater treatment plants, dumpsites, organized industrial district zones and individual industrial plants are considered as main stress factors in the Basin. For instance, process waters and wastes sourced from metal, leather, paper-cardboard-packaging,

chemistry, marmalade, textile, food, ceramic, vegetable oil are directly discharged to Nif Stream without any treatment procedure. Especially, the olive oil industry and its treatment by-product olive oil mill cause serious environmental problems such as acute high-loaded discharges and now there are 167 actively existing olive oil plants. On the other side, however, most of the industrial plants have industrial wastewater treatment plants, the River can not tolerate the load anymore because of the high number of discharge points. In addition to these, wastewater treatment plants are not regularly operating or by-passing the wastewater to the River.

16. The Gediz River Basin has very suitable climatic conditions for growing a wide range of crops and eligible agricultural lands, therefore it plays an important role in Aegean Region. Agricultural lands constitute 53% of the total area of the basin, which in turn contribute 10% of the total agricultural production of Turkey. Additionally, 5.6, 10, and 16 percent of the land in Turkey planted with vegetable, olive and vineyards, respectively, are located in the GRB. Agricultural pollution is distributed to a large spectrum due to using fertilizer and pesticides in agricultural facilities. Moreover, the ground water level decreases because of irrigation. Animal husbandry, the second source of livelihoods for local people, corresponds to 25% of agricultural production. Manure production and its uncontrolled usage and disposal cause to increase area source emissions.

17. The existing water resources are under pressure because of the above-mentioned reasons that can be shortly summarized as rapid industrial development, population growth, related increases in agricultural production, and pollution. The long-term impacts of existing trends and possible future tendencies in water uses have to be evaluated to develop sustainable water policies. This is necessary for maintaining the sustainable development of the region. The importance of the institutional and regulatory framework and the need for direct participation of major actors and stakeholders in the planning and decision-making processes should be strengthened.

18. Social, economic and environmental targets within the scope of sustainable water management must include clean drinking water and domestic water, regional development, agricultural and industrial development, water quality, support to habitats and natural life, and preservation of aesthetic and natural values. In addition, Turkey is currently working on a national water information system and a basin monitoring system in order to ensure sustainable water management.

19. Another goal is to allocate sufficient water to riverbeds, natural lakes and wetlands to ensure preservation and sustainability of life balance to protect natural balance and biodiversity. Control and prevention measures should be taken on the pollution of water resources, while the reuse of waste discharge waters in industry and agriculture should be promoted. Overuse of fertilizers and pesticides in agriculture will be mitigated in order to prevent the pollution of agricultural lands as well as water pollution, and focus will be put on developing clean production technologies in the industry in order to reduce water demand and protect water quality

Barriers

20. The main barriers that need to be addressed to overcome the problems described above are as follows:

Barrier #1: Lack of an effective water management system for Gediz River Basin

21. The GRB is under water stress and is sensitive to drought. The existing water management system needs to be improved to solve the challenges in the Gediz River Basin. A functional water allocation system is required for the sustainable utilization of surface and ground water for irrigation, urban, and industrial requirements, as well as for environmental protection.

22. Coordination among the responsible units needs to be enhanced. Two public agencies are responsible for in-stream and treated wastewater discharge monitoring. In-stream monitoring is done by State Hydraulic Works, and treated wastewater discharge monitoring is executed by the Ministry of Environment and Urbanization. Provincial Directorates of Environment and Urbanization have enforcement power. Governors are subject to competing pressures and are generally unable to ensure effective enforcement programs. Responsibilities for basin planning and monitoring are re-arranged in a way that covers different dimensions such as ground and surface water, water quantity and water quality.

23. As the management system and implementation are not participatory enough, the engagement of local stakeholders remains one of the significant barriers. Participation of local-level stakeholders is very minimal at the management stage. Increasing the awareness of the private sector regarding the pollution sources of the River Basin such as area sourced wastewater, and the emergence of effective NGO-based advocacy for environmental concerns in the basin will strengthen the coordination mechanism. NGOs have no role in performing essential management functions, but clearly have an important role to play in overall basin governance. Local-level support and engagement are absolutely essential for any successful conservation and resource management effort.

Barrier #2: Weak balance among conservation and utilization of natural resources in the river basin

24. The basin is not only significant for human-based activities but also is crucial for biodiversity and water-related values. The Gediz Delta/Bird Paradise[17]¹⁷ is an important nature reserve and has recently been designated as a Ramsar site to protect rare bird species. Not only bird paradise but also Gol Marmara[18]¹⁸, Sipil Mountains National Park, Focal Special Protected Area are another global level important natural sites in the basin. Also, there are wetlands and endemic marine species in the basin. The wetlands such as Bird Paradise is currently fed by the existing implementation such as irrigation system. The water systems in the river basin will be affected negatively due to a weak balance among utilization and conservation activities.[19]¹⁹ The biodiversity in production landscapes is not sufficiently taken into account in practicing agricultural and forestry activities in the basin: the uncontrolled use of fertilizers in agricultural activities harms biodiversity in lands and rivers. Besides, biodiversity is not sufficiently considered while doing afforestation works and establishing riparian forests.

25. Institutional and technical capacities, mainly at sub-regional and sub-district levels, are very limited to ensure effective management and holistic river basin management, conservation of natural resources and sustainable and nature-friendly activities. This barrier is significant, as these institutions have the primary mandate to planning, coordinating and monitoring the river basin activities, and are required to work with multi-stakeholders and provide technical leadership to support sustainable resource management and conservation of the values and assets.

Barrier #3: Limited knowledge on innovative approaches and tools on sustainable use of water resources_

26. One of the significant barriers in ensuring natural resource management and conservation of the water resources in the river basin is insufficient knowledge and experience on innovative approaches and alternative solutions to effective use of the resources. Nature-friendly practices and alternative solutions will increase the quality and sustainability of the resources. For example, improvement of the irrigation schemes, either in conveyance systems or in the method of field irrigation, is positively reflected in the water budget of the basin. If improvements can be realized in the irrigation schemes, these will positively affect the wetland-bird paradise as well. It has been demonstrated around the world that local communities would be willing to participate and engage in the sustainable management of natural resources if adequate economic incentives are provided. Though at present, in the project region, communities are engaged in activities that provide them with a certain level of income, this is neither sustainable nor adequate and results in over-and unsustainable utilization of natural resources.

Barrier #4: Lack of a quality monitoring program for the river basin

27. The major water-related problem encountered facing the Gediz Basin presently is the poor and deteriorating quality of its surface water. The deterioration is mainly caused by intensive agriculture and high pollutant loading to the surface and underground waters; decrease of groundwater table and over usage of surface water due to irrigation, and increase in usage of agricultural chemicals for more productive agriculture. With the addition of rapid growth in population and the even more rapid growth in the local industry, a vicious circle is faced in the Basin. Failure to control this growing problem at its several sources leads to large requirements for in-stream flows for dilution ? flows which are then unavailable for other uses. The problem stems from several sources such as weak enforcement, weak coordination among involved agencies, limited availability of data, haphazard monitoring of wastewater discharges, inadequate funding for wastewater treatment plants, and limited public awareness of the problem.

Barrier #5. Lack of an analytical framework

It follows from the above discussions that the project aims to tackle a wide array of identified development objectives. Hence concerted coordination is required to synchronize activities and avoid conflicting interests. The project will, therefore, benefit immensely from a decision support tool (DST) that accurately presents the socio-economic and biophysical processes in the GRB to inform policy-makers on the impact of their interventions. The DST is based on a multidisciplinary engagement strategy that serves to align flows of information from all GRB land and water users and other stakeholders involved from grass root to ministerial levels. Harmonizing these different data increases the credibility of the tool and ensures that outcomes are better understood. The developed tools may include illustrating the results of interventions in synoptic tables and colorful maps that are interpretable for a large audience and makes comparisons between various options possible.

(ii) Baseline scenario and associated baseline projects

28. The current legislative structure of water management in Turkey exhibits a scattered structure, with many institutions being responsible for the tasks regarding water. The main institutions responsible for the water sector in Turkey are;
? Ministry of Agriculture and Forestry (General Directorate of Water Management, General Directorate of State Hydraulic Works, General Directorate of Agricultural Research, General Directorate of Agricultural Reform, General Directorate of Fisheries and Water Products, General Directorate of Plant Products, General Directorate of Nature Conservation and National Parks,)

- ? Ministry of Environment and Urbanization (Directorate-General for Environmental Management / Directorate-General for Environmental Impact Assessment, Permit and Inspection
- ? Municipalities/ Water and Sewerage Administrations
- ? Ministry of Energy and Natural Resources
- ? Ministry of Health (Public Health Institution of Turkey)

29. The Ministry of Agriculture and Forestry is authorized for the coordination of management of water resources in the river basin, including waste waters. There is also a provision on the drafting of a National Water Plan including the water management policy to meet the social, ecological and economic needs, by taking into account the current and future situation of the water resources for integrated management of water resources in terms of quality and quantity, along with the participation of relevant stakeholders.

30. The programs implemented by the General Directorate of Water Management (GDWM), would form the main baseline for this project. The regular program of GDWM focuses on the planning and management of the water basins in Turkey. Under the program, the GDWM has been working for the planning and monitoring of the Gediz River Basin since 2008 with a total investment of USD 710.000. GDWM also carries out the national catchment planning and monitoring programme (supported by the national budget of Turkey) to prepare water Catchment plans for the 25 River Basin in Turkey. The objectives and key focus of this program are: (i) preparation of the river basin management and action plan for each river basins, including strategies, policies and management objectives together with investment and monitoring, (ii) raising awareness on river basin management and sustainable resource management, and (iii) increasing the collaborative management of the river basins together with key stakeholders.

31. Other river basin management and conservation-related baseline activities include:

- i. **Basin Protection Action Plans (BPAPs)**: BPAPs are one of the most important works carried out to manage water resources, which are one of the most important components of the sustainable development of our country. BPAP use the basin as the basis for planning and fulfill the requirements of the EU Water Framework Directive (WFD).[20]²⁰ In 2010, 11 BPAPs were prepared, and the remaining 14 BPAPs were completed in 2013. BPAP is the first and important approach to the management of water resources in the basin from the WFD point of view. This plan is the basis of future work (River Basin Management Plan) thanks to the characterization and diagnosis work carried out at the basin level. This includes the following information:

- Characterization of existing situation (identification of the characteristics of surface water and groundwater resources as well as pollution within the river basin; identification of pressures and impacts caused by urban, industrial, agricultural, economic, etc. activities in the river basin; examination in detail of identified pollution sources and loads; identification of water potential, utilization purposes and environmental infrastructure status)
- Describing important pressures within the river basin and listing required precautions for reaching good water quality; preventing pollution; calculating environmental flows.
- Carrying out studies and planning with regard to short, medium and long term measures with the participation of all stakeholders in order to protect and improve river basins. Ensuring participation of all stakeholders in the process.

ii. **River Basin Management Plans (RBMPs)**: Through publishing By-law on Preparation, Implementation and Follow up of RBMPs in the Official Gazette dated 17 October 20172 numbered 28444 it was obliged to develop River Basin Management Plans for 25 basins.

- In RBMPs, studies are carried out for the protection and planning of surface waters and groundwater following a holistic approach. Since 2013, 88 River Basin Management Plans have been completed and 3 River Basin Management Plans are still being prepared. The remaining 14 River Basin Management Plans will be completed by 2023. These plans include (i) identification of the river basin district, (ii) an Article 5 Report on each river basin district, (iii) a 'significant water management issues' report for each river basin district, (iv) a programme of proposed measures for each river basin district, (v) environmental objectives for a selected number of water bodies, and (vi) a monitoring programme and status classification according to the WFD.
- RBMP differs from the BPAP in their broader consideration of biological issues, as well as hydro-morphological and chemical issues. RBMPs consider water bodies and typology, classification, objective setting and economic analysis and are built from a thorough understanding of communication processes, pressures and impacts, and monitoring data.
- Finally, as a complementary stage of BPAPs, RBMP are foreseen as one of the main intervention areas to reduce impacts of climate change, enhance efficient water management allocation. and enhanced ecosystem services

(iii) The proposed alternative scenario and a brief description of expected outcomes and components

Proposed approach and theory of change

32. The proposed project focuses on integrated natural resource management interventions to enhance water and land governance at policy and local levels in the agriculture sector, and to mainstream biodiversity protection in priority sectors within the basin. This will ultimately assist in improving socio-economical well being of the local community, and mitigating the impacts of Climate Change. To improve the ecosystem in the GRB, it is important to understand the linkages between land, freshwater and biodiversity.

33. Integrated natural resource management constitutes a dynamic interface between land, water, ecosystem and human life that captures a key development and environmental challenge of our time. Indeed, the integrated approach is an opportunity to address the increasing pressure and related degradation processes of the land and water resource base, which especially affects the poor women and men who cannot mask resource deterioration with expensive inputs. External factors like mounting population, the fast rise of urban areas and agricultural overexploitation affect the quality and biodiversity of the basin. with degraded forests, mine pollution and eroded crop lands and downstream affected delta's and marine environments as most visible symptoms. These negative developments go beyond the individual land users' and justify the calls for coordinated action at the basin level..

Water monitoring models serve as decision support tools and can provide an adequate answer to these threats as it accounts for land and water users in up-and low land areas as well as for fishers in delta's and bordering open seas. Data collection and harmonization can support identifying the sources of pollution by specifying hydrological effects under natural shocks (climate change) and anthropogenic interventions (increased pumping, new infrastructure). These models accommodate a set of structural water response functions that reflect farmer's behavior to changing water availability, covering natural and machine-made water flows and water use. A suitable fit for purpose water monitoring model for Turkey, considering local condition and expertise, and international standards and innovations, will be calibrated and applied as a tool for the decision support system.

Project objective and components

34. The project will build on the baseline projects and add value to the existing Gediz RBMP implementation process by focusing on the interaction between the water and agriculture sectors. The objective of the project will be **to promote Integrated Natural Resource Management (INRM) and mainstream Biodiversity Conservation in the Gediz River Basin with a focus on the sustainable management of land and water resources.** The integrated watershed management approach within GRB resonates the integrated approach that respects characteristic interdependencies between upstream land and water management and downstream quality of deltas and coastal areas, interconnected through the surface, subsurface flows, rivers, canalized networks and infrastructural routings.

35. GEF resources will be used to strengthen the enabling environment and showcase strategic practices to induce a change in the way natural resources are currently managed in the GRB. By

ensuring local stakeholders are part of the decision-making processes, the proposed project will develop a model that ensures GEF-financed interventions are accepted by project beneficiaries. As project interventions show the benefits of improved management, best practices will be disseminated to ensure the proposed models are upscaled not only to the GRB but to other basins in Turkey, leading to improvements in the status of natural resources in the country.

Component 1. Enhancing collaborative management of the Gediz River Basin

36. The integrated management of natural resources is based on the construction and effective implementation of public policies and norms within the governance framework, under the principles of inclusive participation. The outcome of this component will be a strengthened enabling environment that is conducive to the implementation of the Gediz RBMP. The project will improve the management effectiveness of the river basin by establishing and implementing a collaborative river basin management model (Output 1.1.1). It will support the engagement of all key stakeholders to strengthen collaborative management and establish a good governance model for the basin. During the project preparation, the existing river basin management plan and governance model will be reviewed and assessed to identify weaknesses and areas of improvement. Based on this assessment, the river basin management plan and governance model will be updated and implemented with the project. This will include an assessment of Gediz River Natural Capital and the development of the scenarios for the incorporation of natural capital into policy/planning (Output 1.1.2). It will support the capacity building of the key stakeholders to support the implementation of key components of the Gediz RBMP: (Output 1.1.4) and to make them part of the monitoring process (Output 1.1.3). In particular, the GEF will finance the following outputs and activities:

Table 2. Output/Activity matrix for outcome 1.1

Output	Activities
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<p>1.1.1 Governance mechanisms (including incentives) developed and a road map provided to support community-based management and decision making at the basin and sub-basin level</p>	<p>During project preparation, the existing river basin management plan and governance model will be reviewed and assessed to identify weaknesses and areas of improvement.</p> <p>Based on this assessment, a governance mechanism will be designed and implemented which will support decision making and sustainable management of the River Basin. This will include training of government staff (at least 50 govt. staff and 200 local stakeholders) at the General Directorate and Provincial Division Directorate level, and other local stakeholders in best practices in river basin and biodiversity conservation and management. ((under output 1.1.4)</p>
<p>1.1.2. Gediz River Natural Capital assessed, and scenarios for the incorporation of national capital into policy/planning developed</p>	<p>Gediz River natural capital will be identified, measured, and valued, centered over ecosystem services including biodiversity, to integrate the understanding of this value into decision making and policy instruments. This will ultimately lead to: 1) mitigate or eliminate harmful incentives leading to the degradation of natural capital assets or to identify positive financial and other policy incentives for the maintenance or enhancement of these assets ; and 2) enhance financing for sustainable management and restoration of natural capital, including through affecting public and private financial flows.</p> <p>This will follow GEF recommendations in conducting a baseline diagnosis of institutional capacity to undertake natural capital assessment and accounting; review of expenditures on natural capital management, assessment of finance needs for natural capital management; implementation of natural capital assessments and accounting; and planning of natural capital into policy, planning, and decision-making.</p>

<p>1.1.3 Hydro-Economic model developed for the GRB to support decision-making and monitoring</p>	<p>-Design, calibration and integration of a suitable Hydro-Economic Model</p> <ul style="list-style-type: none"> - analyzing and identifying the source of nutrient load in water bodies and the sedimentation caused by land erosion - definition of indicators <p>Hydro-economic models are useful tools to assess water-resource management. In recent years, HEMs achieved significant advances regarding the assessment of the impacts of water-policy instruments at a river basin/catchment level in the context of climate change (CC). Under this component, the creation of a Decision Support Tool (Output 1.1.3) considering local condition, and existing successful models and national expertise, and international standards and innovations, is planned.. First, data is collected in the project area for an accurate representation of the socio-economic and biophysical landscapes of the GRB with a special focus on water flows. Where needed data are complemented. Consultation rounds with stakeholders should assure that specific interests of water users are correctly represented and pondered. Second, data are harmonized in an analytical framework that interconnects natural and controlled water flows (volume and quality) over time and in different layers. Third, water balances are prepared in different dimensions, considering also the impacts of Climate Change Fourth the framework is designed, calibrated and converted into a decision support tool. The base run of the DST will represent current conditions, and upon consultations with stakeholders prospective scenarios are run to analyze the impact on the socio-economic and biophysical connections of specific interventions.</p>
<p>1.1.4 Stakeholder capacity building program to support the implementation of key components of the Gediz RBMP: (i) rainwater harvesting, (ii) green belt application, (iii) artificial groundwater recharge (iv) biodiversity mainstreaming in the agriculture sector</p>	<p>-Capacity needs assessment (to be carried out during project preparation) and associated capacity building plan including:</p> <ul style="list-style-type: none"> - Leadership training, with a focus on women and youth, to ensure participation in decision-making processes - Training material developed to sessions organized to support the implementation of Gediz RBMP, including: <ul style="list-style-type: none"> - Feasibility assessment for the rehabilitation of aquifers by artificial recharge to groundwater such as catch drain and pools among the river - Feasibility assessments for models rainwater harvesting to support rehabilitation and increase in the quality of water in the basin both in the forest, pasture and agricultural lands (to be implemented under component 2)

37. Proposed outcome indicators include:

- *Percent district municipalities in the basin that adopt community-based resource management plans*
- *Number of actors (tracked by gender and youth) that participate in decision-making processes*
- *Number of policies/decisions made/revise for biodiversity mainstreaming (harnessing biodiversity for sustainable agriculture)*
- *Data from the basin monitoring system informs the decision-making process*
- *Area of landscapes under improved management to benefit biodiversity as measured by the METT.*
- *At least 200 trained staff and stakeholder*

Component 2. Enhanced sustainable land-use practices and integrated natural resource management

This component will ensure a sustainable living environment for water-related resources inside the river basin. Innovative approaches and techniques will be used to decrease the pollution and ecological effectiveness, a handbook will be developed for restoration and rehabilitation of the degraded landscapes and wetland ecosystems in Turkey for effective river basin management and natural resource conservation in the project region will be ensured through the restoration of at least 950 ha of the degraded riparian zone of the River (include degraded riparian zone-habitats, agricultural land and production landscapes). The areas to be restored and rehabilitated as landscape restoration sites will be identified during the project preparation phase through a series of activities, which includes stakeholder consultations, field surveys, and an expert from forestry units, etc. The activities under this component will be contributed and upscaled by using co-financing resources.

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Table 3. Output/Activity matrix for Outcome 2.1

Output	Activities
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2.1.1 Landscape restoration activities including the integration of biodiversity in supporting key ecosystems demonstrated across different land covers to improve the provision of ecosystem services, including:

(i) At least 250 ha of landscape connectivity both structural and functional created in degraded riparian zone-habitats (e.g. green belt application to reduce the negative effects of surface flow and erosion control with the plant species) inside three different sub-basins. (Core Indicator 3.2).

(ii) 100 ha of agricultural land (enriching soil organic carbon) and sustainable management of the agrobiodiversity

(iii) 100 ha of grassland and pasture (ensure ecologic, economic and social benefits)

The areas to be restored and rehabilitated will be identified during the project preparation phase through a series of activities, which include stakeholder consultations, field surveys, and close cooperation with experts from forestry and agricultural units in central and local government institutes. In particular, the project will:

- Ensure the restoration of 5 km of degraded riparian zones covering an area of roughly 250 ha.
- work with local stakeholders to identify and restore 100 ha of agricultural land that will contribute to conserve threatened agrobiodiversity and to use in a sustainable manner
- work with local stakeholders to identify and restore 100 ha of grasslands and pastures
- identify and create 250 ha of landscape connectivity in the river basin

The main activity under the implementation of the river basin management plan will be landscape restoration which has been degraded the river ecosystem inside the three different sub-basins along the rivers basin; Local livelihoods will be enhanced through non-wood forest product, ecotourism, medicinal and aromatic plant production, NWFP value chain development. The project will provide the necessary inputs for restoration and rehabilitation of the degraded lands and to ensure project activities are carried out promptly while ensuring significant participation of women and youth. These activities will improve the vegetation cover and will support the provision of ecosystem services in the basin. When upscaled, these activities will strengthen the ecological integrity and available living environment and will be the basis for additional local livelihood improvement opportunities. The necessary inputs and tools for the implementation of these activities will be listed and clarified during the PPG process in close cooperation with the key stakeholders.

<p>2.1.2 SLM practices upscaled and promoted in 250 ha to avoid and reduce land degradation and to restore ecosystem services and biodiversity in the river basin. This is aimed to prevent soil degradation, increase vegetation cover improve the water conservation and water usage efficiency , and reduce diffuse pollution caused by agriculture, including sedimentation in a river basin ,restoring ecosystem services and biodiversity.</p>	<p>During project preparation, the project team will engage local female and male farmers/small-scale enterprises to identify 200 ha of land where eco-friendly demonstrative activities to conserve biodiversity and reduce water use and pollution caused by agricultural activities can be implemented. This includes activities such as:</p> <ul style="list-style-type: none"> - Improved irrigation efficiency through pressurised irrigation methods, - crop pattern changes, - ensure sustainable soil management - pesticide and fertilizer management - alternative income generation activities, - water pollution filters for fish farms, - renewable energy technologies to reduce pressure on forest and other natural resources <p>The rainwater harvesting models analyzed under Output 1.1.3 will be implemented in a total of 50 ha in one of the 3 different sub-regions of the River. The areas for rain harvesting will be identified during the project preparation phase through a series of activities, which include stakeholder consultations, field surveys, and an expert from forestry units, etc.</p> <p>The model will be disseminated to the other sub-basin through the River and other River Basins by the General Directorate of Water Management in close cooperation with State Hydraulic Works and local based administration authorities</p>
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38. Proposed outcome indicators include:

- *Number of hectares of land restored with project resources, with a target of 450 under different types of land cover (upscale target to be defined during project preparation)*
- *Number of hectares under SLM with project resources, with a target of 250 ha under different land uses integrated biodiversity (Core Indicator 4.1)*
- *At least 100,505 metric tons of CO₂eq mitigated (Core Indicator 6)*
- *Funds invested to upscale land restoration, SLM practices and while conserving biodiversity in different land uses,*
- *Riparian zone landscape restoration handbook*

- *Trained national officers on implementation of land restoration and SLM practices (15 ministerial staff, 15 provincial / extension level staff and 20 smallholders)*
- *Increased Population of Targeted Species (Target to be defined during project preparation).*

Component 3. Monitoring, evaluation and lessons dissemination

39. This component will focus on both the establishment of a comprehensive monitoring system for the restored landscapes to monitor progress and ensure the project's progress is tracked and periodic evaluations are conducted for adaptive, results-based management. Similarly, project results, key lessons learnt, and achievements will be documented and disseminated for replicability and scaling up.

Table 4. Output/Activity matrix for Outcome 3.1

Output	Activities
3.1.1 A Comprehensive monitoring system established and piloted for the restored lands within the framework of national LDN and CBD commitments.	The framework for a rigorous monitoring program will be designed during the PPG process in close cooperation with the key stakeholders and scientific team.
3.1.2. Integrated monitoring and evaluation system for the project applied	A Gender-Sensitive Project Monitoring & Evaluation Plan and a relevant system are in place
3.1.3 Final evaluation conducted and informing replication strategies	The project will prepare a communication and outreach plan, followed by knowledge and communication products in the area of SLM practices that can be applied to achieve LDN at the sub-national and national level in Turkey. A national LDN guideline will also be published that describes how LDN should be measured at different scales and how gains and losses could be balanced from the landscape and up to the national scale.
3.1.4 Knowledge tools and information materials for SLM and integration of biodiversity into land use plans developed and disseminated based on best practices	The project will prepare a communication and outreach plan, followed by knowledge and communication products in the area of SLM practices that can be applied to achieve LDN in the GRB.

40. Proposed outcome indicators include:

- *A rigorous monitoring program for the river basin*
- *Indicators of environmental impacts, biological assets and socio-economic benefits monitored and analysed, disaggregated by gender*
- *Number of best practices and experience of demonstrations disseminated*
- *Number of trained farmers (150, 80 being female)*

(iv) Incremental reasoning and expected contributions from the baseline, the GEFTF and co-financing

41. The Government of Turkey has been active for decades investing in addressing all river basin planning and management issues, more recently has embarked on adopting new approaches and tools for natural resource management and conservation. The MoAF has been carrying out management and monitoring activities within the river basin, in coordination and collaboration with other relevant government institutions. These activities vary from planning and management to implementation on the ground. The GEF resources will build on all related baseline activities to generate global environmental benefits.

42. Under component 1, the project will demonstrate how to build a mechanism from top to bottom in River Basin Management. GEF resources will be used to make a governance system including monitoring, community-based planning and decision making at the basin and sub-basin level. Through these practices, local actors including mainly women and youth will participate in the decision-making system in the River Basin.

43. Under component 2, GEF incremental financing will be used to demonstrate socially and economically viable actions in the different sites. These activities will be up-scaled using co-financing. The project will support planning activities (inventory and participatory management plans) that will lead to the development of business models and further investments (including household investments) in new technologies and approaches.

44. Finally, under Component 3, the GEF incremental financing will support activities related to the development of the project's M&E system (including staff and data collection), the preparation of training and awareness-raising materials, and organizing meetings and travel for the capacity building program.

(v) Global Environment Benefits (GEBs)

45. By extending the ecosystem coverage through buffer zones and incorporating biodiversity conservation concerns into productive forest planning and management, conservation of globally significant species will be enhanced:

? Specific species and targeted increase in respective populations at the end of the project to be clarified during the project preparation phase

? Through improved landscape restoration techniques and restoration, carbon stocks will be enhanced and sequestered

? The flow of important wetland ecosystem services and goods (e.g. NWFPs) is sustained through improved sustainable land management

46. Carbon calculations: Restoration will be carried out over a targeted 950ha to increase the vegetation cover by at least 5% (possibly more, to be confirmed after assessments during the PPG phase). Besides, rehabilitation of degraded lands and integration of biodiversity into land-use plans (e.g. forest management plan) and dissemination and utilization of solar panels will also contribute to the carbon calculations.

Table 5. Global Environment Benefits (GEB) related to landscape restoration

	Ha
Core Indicator 1 ? Terrestrial protected areas created or under improved management for conservation and sustainable use (Hectares)	14,900 ha of the Gediz Delta as measured by the METT.
Core Indicator 3 ? Area of land restored	450 ha
- riparian zone-habitats	250 ha (inside three different sub-region)
Area of agricultural lands agricultural land and sustainable management of the agrobiodiversity	100 ha. around the green-belt.
- Area of grassland and pasture	100 ha of riparian forest (5 km. long, 200m wide)
Core Indicator 4 ? Area of landscapes under improved practices (excluding protected areas)	250 ha.

- Area of landscapes under sustainable land management in production systems	(output 2.1.2?agroecological practices) 200 ha (output 2.1.2?rain harvesting: 50 ha)
Core Indicator 6 ? GHG emissions mitigated	
- Carbon sequestered of emissions avoided (AFOLU)	100,505 tCO ₂ eq
Core Indicator 11 ? Number of direct beneficiaries, by gender	205 Female 195 Male

(vi) Innovativeness, sustainability and potential for scaling up

47. Innovativeness: In the context of Turkey, the project is innovative as it is implementing approaches that are new to the country. Landscape restoration and collaborative management via rain harvesting and green belt applications of river basin will become more integrated. In the future, ecosystem services (including biodiversity) would be an integral part of wetland and river basin management.

48. Sustainability and Potential for scaling up: The institutional and local level capacities built, the governance models setup, and livelihood activities implemented will ensure the overall sustainability of the results achieved through this project. The rain harvesting technics and other piloting activities under this project would provide a blueprint for GDWM to scale up the piloted activities throughout the country under their regular programmatic efforts in other river basins.

(vii) Opportunities to mitigate impacts, deliver GEBs and contribution to green recovery and building back better

This project will build on the efforts from the Turkish Government to build back better considering that the Water Service has been designed as a key executing agency for post COVID-19 economic recovery activities with the implementation of water management and natural resource protection activities to be developed during 2021. This project will take the lessons learned from that experience and build on

them to promote sustainable practices and business models for the forestry and agriculture sectors. The project will partner with the private sector, local communities and stakeholders to implement good practices, and partnerships. These activities will be a part of a river basin management strategy that will contribute to the conservation of biodiversity and ecosystem services and achieve Turkey LDN targets through the restoration of at least 950 ha of the degraded riparian zone of the River (include degraded riparian zone-habitats, agricultural land and production landscapes). SLM practices will be upscaled and promoted to prevent soil degradation, increase vegetation cover, improve the water conservation and water usage efficiency, and reduce diffuse pollution caused by agriculture, including sedimentation in a river basin, restoring ecosystem services and biodiversity and in parallel, improving the livelihoods of small farmers who will directly benefit from these practices

[1] EU WFD 2000/60 of 22 December 2000.

[2] 2018. Gediz River Basin Management Plan

[3] <http://www.dsi.gov.tr/toprak-ve-su-kaynaklari>

[4] https://www.sbb.gov.tr/wp-content/uploads/2020/06/Eleventh_Development_Plan-2019-2023.pdf

[5] <https://www.wri.org/publication/aqueduct-projected-water-stress-country-rankings>

[6] Turkey National Water Plan (2019-2023),
<https://www.tarimorman.gov.tr/SYGM/Belgeler/NHYP%20DEN%C4%B0Z/ULUSAL%20SU%20PLANI.pdf>

[7] FAO AQUASTAT?Total water withdrawal in Turkey increased by roughly 56% between 2000 and 2015, driven mainly by agricultural uses. Agricultural water withdrawal increased from 31.5 to 50.1 billion m³ in this period.

[8] reference

[9] MoEU (2012). Turkey?s National Climate change adaptation strategy and action plan (2011-2023).
([link](#))

[10] Bozoglu et al (2019). Impacts of climate change on Turkish Agriculture. Journal of Environmental Application and Science, v14(3): 97-103.

[11] Dellal et al (2011). The economic assessment of climate change on Turkish agriculture. Journal of Environmental Protection and Ecology, v12: 376-385

[12] Besides the Gediz River, the basin has nine tributaries called Ala?ehir, Selendi, Koca?ay, Demirci (Demrek), Derbent, G?rdes, Medar, Kum and Nif.

[13] <http://extwprlegs1.fao.org/docs/pdf/tur175972.pdf>

[14] Link for Gediz RBMP

[15]

https://www.academia.edu/15725850/Gediz_Basin_Management_Problems_and_Possible_Remedies

[16].Dabanli, I. 2018. Drought risk assessment using drought hazard and vulnerability indexes. Natural Hazards Earth System Sciences. <https://doi.org/10.5194/nhess-2018-129>

[17] The Gediz Delta has been identified as an important Bird and Biodiversity Area, as well as a Key Biodiversity Area based on significant populations of globally threatened species, significant populatoia of endemic species known to be found in a limited area, and significant congregations of one or more bird species at certain times in their lifecycle or seasonal migration. Ibat-alliance.org/kba-factsheet/787 <https://www.protectedplanet.net/166884>

[18] Ibat-alliance/kba-factsheet/762

[19] Fish catches have declined in the Gediz Delta, possibly due to increasing salinity in the lagoons as a result of reduced freshwater inflows (BirdLife International, 2020. Important Bird Areas factsheet: Gediz Delta)

[20] The legislation in the field of water quality built upon Water Framework Directive (2000/60/EC) during Acquis Alignment process and a comprehensive Draft Water Law has been developed based on a holistic water management approach. Considering the importance of river basin management approach River Basin Protection Action Plans (RBPAP) have been developed for 25 river basins

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

Project site

49. The project activities will take place within the Gediz River Basin inside the western Anatolia along the Aegean Sea, neighboring Izmir. Kutahya, Usak and Manisa are other provinces inside the basin and encompass about 1.703.394,000 ha (Figure 3). The proposed project site is presented below under Figure 2. The Gediz Basin is part of the Aegean region and the Mediterranean rainfall regimes. It has hot dry summers and cool winters. The average annual rainfall amount is some 500 to 530 mm, but extremes of 300 mm and 850 mm also occur. Precipitation is concentrated in the winter period. Precipitation in the basin ranges from over 1 000 mm per year in the mountains to 500 mm per year near the Aegean coast. In the mountains, the precipitation mainly falls in the form of snow.

50. Gediz Basin has 50% (8.559.829 ha) is agricultural land, 47% (7.980.508 ha) of forest and semi-natural areas, and 2% (316.015 ha) of the city that is modified artificially by the human being. In

the basin, surface waters cover approximately 1% (129,134 ha) of area, while wetlands occupy only 50,384 ha. The main water resource is the Gediz River, with a length of 275 km. There are two other natural wetlands, lakes (G?lmarmara ve G?lc?k) in the basin, near the Aegean Sea. Also, it is a bird paradise inside the basin, Gediz Delta called Ku? Cenneti. This land is an important wetland area and one of RAMSAR sites that was established in 1997 and has significant importance for birds and some other wetland species. Delta covers 40.000 ha, including 20,400 ha of wetland. It is located 25 km to the west of Izmir harbor, and forms the main feeding and breeding location within the delta, although the birds use the entire delta as a habitat. The freshwater area of Ku? Cenneti is estimated to be 1 100 ha. It is 4rd biggest delta in Turkey in terms of size. Protected areas in the basin are given in Table 6.

Table 6. Protected areas in the river basin related to landscape restoration

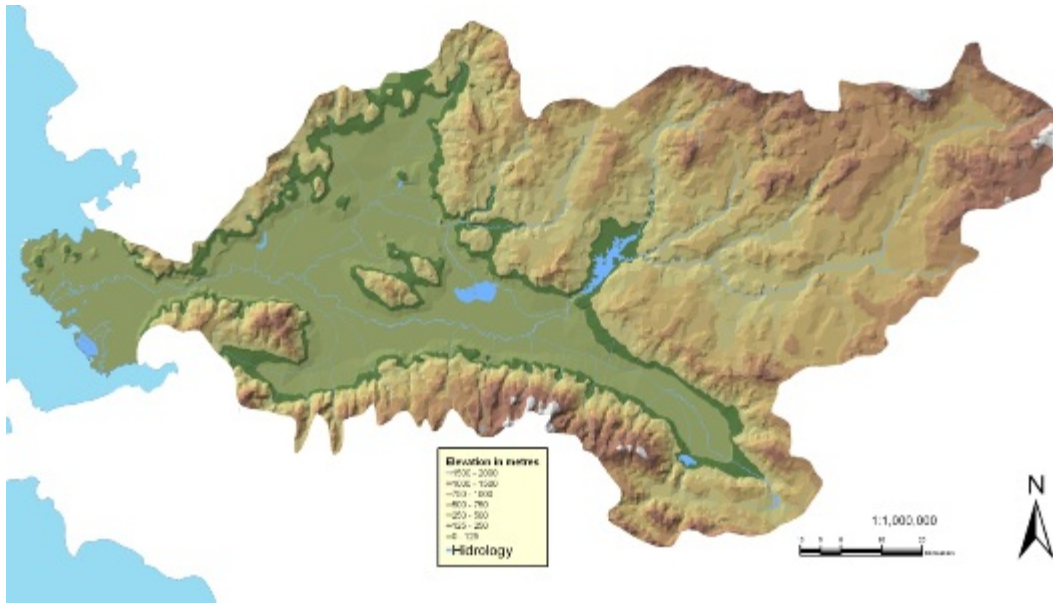
Name of the protected areas	Total Area (ha)	Info
Gediz Delta RAMSAR Site (International Important Wetland Area)	14900	Cultural and Natural Asset; Wildlife Protection Area. An extensive coastal wetland with bays, salt and freshwater marshes, large salt pans, and four highly saline lagoons located at the mouth of the Gediz River near Izmir. An important area for breeding, feeding, wintering, and sheltering internationally important numbers of numerous species of waterbirds. Human activities include fishing, agriculture, cattle grazing, and the largest salt production centre in the country. Several ancient cities, such as Leukai and Larissa, are found there.
Spil Mountain National Park	6801	The national park is known for its historical and mythological points, as well as a wide variety of flora and fauna. Cavernous formations in the area have resulted in many canyons, caves and steep valleys. The main species of trees here include pine, juniper, poplar, walnut, elm and oak, 20 of which have been determined in scientific research as endangered. Also found in this area are the Manisa tulips, which gave their name to a period of the Ottoman Empire and were taken to Europe. Species of wildlife living in the park include bears, jackals, roe deer, foxes, badgers, wild goats, vultures and eagles, and there is also a pheasant production farm.
Fo?a Special Environmental Protection Area	7144	is a major part of its importance due to the Mediterranean monk seal (monachus), which has approximately 400 pieces in the world today and is among the endangered species. Pine forests and maquis vegetation are widespread vegetation in the region, and have created habitats for animals such as wolves, foxes, jackals, censors, pigeons and quails
?zmir Bay?nd?r Wildlife Conservation and Development Area	5789	To protect the roes and their ecosystem characteristics and their habitats.

İz?ekli Mountain Natural Park	21	Forest with red pine forests.
Karag?l Natural Park	19	located in Yamanlar Mountain, Kar??yaka, ?zmir. Lake is a landslide set lake formed by geological movements. Forest and lake has the source value (URL 4, Izmir Ecotourism Guide, 2013)
Mesir and Sureyya Natural Parks	12	located on the slopes of Spil Mountain in Manisa.
Ta?yaran Natural Park	2,5	It is located on the Imren stream which is a branch of Gediz River within the boundaries of U?ak province. The Nature park, which was announced on 22/6/2016, is approximately 2500 meters long, consisting of three sections (URL 5).

Figure 2. Location of Gediz River Basin in Turkey

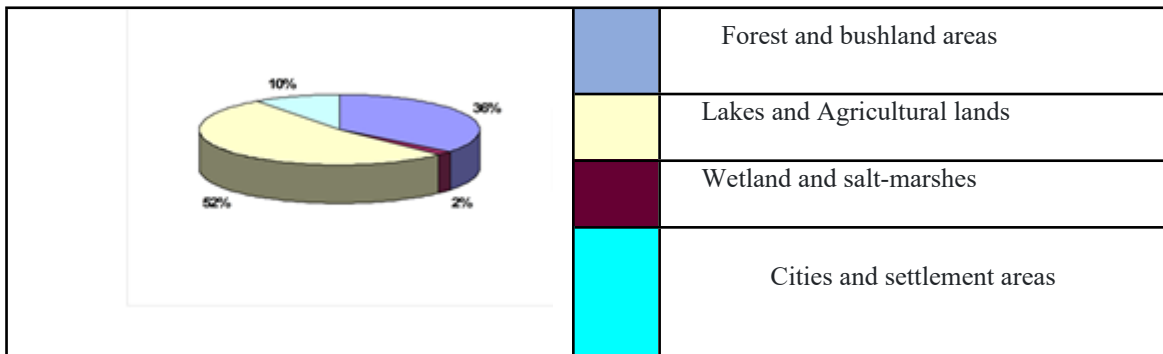


Figure 3. Location of Gediz River Basin (Proposed project borders)



51. Half of the basin lands is used for agricultural purpose. Big partition of remain half covers forest and natural areas. Wetlands and salt-marshes cover only 2% of the total area in the basin (Figure 4).

Figure 4. Land use of the basin



52. Gediz River is the second-longest river in Anatolia flowing into the Aegean Sea. From its source of Mount Murat in Kütahya Province, it flows generally west for 401 km to the Gediz River Delta in the Gulf of İzmir to provide the main water resource to the basin. Gediz River flows from the northeast mountain area to the Aegean Sea. On its way, three more river streams join the flow of the Gediz River. From the southeast Alasehir River flows in, from the northern main valley Gordes River is joining and Kumçay River is joining from the Northwest. The main crops in the Gediz basin are directly dependent on the water and under the irrigation schemes are cotton and grapes. Irrigation schemes have different cropping patterns depending on their location in the basin. Within an irrigation scheme, the cropping pattern changes per year for example triggered by market prices or the season. In general, cotton is mainly cultivated in the delta and towards the mountains, the area of grape orchards is increasing. Other crops grown in the irrigation schemes are summer wheat and vegetables. Non-

irrigated crops are cultivated in the catchment areas in the mountains; crops include wheat, barley, fruits and vegetables

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement

Stakeholder	Type of engagement in project preparation
Ministry of Agriculture and Forestry (MoAF)- General Directorate of Water Management (GDWM)	Project proponents. Will lead the project preparation process along with FAO.
Other Directorates under MoAF and other relevant govt. Ministries and respective Directorates (especially State Hydrology Works, General Directorate of Forestry, General Directorate of Nature Conservation and National Parks, General Directorate of Agricultural Reform, General Directorate of Agricultural Research and Policy)	Project design is expected to address multi-sectoral coordination issues, and to effectively design the relevant project outputs all relevant govt. partners will be consulted and engaged effectively for inputs.
Regional and sub-regional Directorates and Province Directorates of MoAF	Local-level executing partners, and will play a key role in building on-the-ground project baseline information and designing the project components
Academic and research institutes, Municipalities	Expected to play a key role in capacity building and information management activities will provide inputs in developing the relevant project activities
CSOs and local cooperatives (e.g. Irrigation Unions, Farmer Unions)	Will play a vital role in organizing local level consultations and providing feedback and inputs into the project design
Private sector	Consultations will be held with private sector parties relevant to the value chain improvement activities, enable the design of the corresponding project outputs

Stakeholder	Type of engagement in project preparation
Local communities (Women and men farmers, land users etc.)	Direct project beneficiaries. Will be involved in all relevant consultations, specifically in understanding their perspectives in the contexts of threats to the forests and involvement in the project implementation
Cofinancing partners	Key role in designing the project components

3. Gender Equality and Women's Empowerment

Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

53. The main way gender issues will be incorporated into project preparation is through the adoption and use of participatory approaches in all important decisions and activities under the project preparation phase. Women's specific situation will be considered during project design and their needs reflected in project activities.

54. The project design will also ensure that adequate representation of both genders is achieved in all project activities. At least % 51 women community members will actively involve in project activities. Gender-sensitive indicators such as the number of women beneficiaries, women's training needs, type and efficiency of women's agricultural and grazing production will be identified and incorporated into the project's monitoring mechanism. Reporting on project activities, outputs and outcomes will be disaggregated by gender (where applicable).

55. Gender is central to the Food and Agriculture Organization of the United Nations' (FAO's) mandate to achieve food security for all by raising levels of nutrition, improving agricultural productivity and natural resource management, and improving the lives of rural populations (FAO 2013, p.1). The goal of FAO's Policy on Gender Equality is to achieve equality between women and men in sustainable agricultural production and rural development for the elimination of hunger and poverty. FAO is working with countries, other UN agencies, civil society organizations (CSOs) and bilateral and private sector partners to make progress toward achieving objectives by 2025.

56. The GEF recognizes that, for its Project interventions to achieve their global environmental objectives, particular attention should be paid to enhancing both women's and men's contributions. The GEF was one of the few international financial institutions to develop early-on an independent public participation policy, including provisions on gender issues. In addition, the GEF Operational Strategy provides ten operational principles and overall direction to the GEF focal areas to maximize global environmental benefits. Principle 7 relates directly to public participation, including gender, and states that "GEF projects shall provide for full consultation with, and participation as appropriate of, the beneficiaries and affected groups of people" (GEF 2008, p.7,15,16).

57. Gender equality is protected by international and national legal regulations in Turkey. In 1985, Turkey signed and ratified the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), and in 2000, the country signed the Additional Protocol to CEDAW. In 2002, Turkey signed the Optional Protocol (of CEDAW) that allowed the right of individual petition to the Convention's Committee on the Elimination of Discrimination against Women. In addition, in 1995, the Turkish government signed the Beijing Declaration of the Fourth World Conference on Women, and committed itself to its Action Plan.

58. In Turkey, the Constitution is the fundamental document regulating and guiding all issues relating to gender equality. In addition to the Constitution, the main legal documents regulating gender policy are: the Turkish Civil Code, Labour Law and the Penal Code. Mainly the Ministry of Family, Labor and Social Policy and other governmental bodies are jointly working on women's empowerment in their socio-economic lives. A Directorate for women's rights and gender equality was established in 1990: the General Directorate of Women's Status, (Kadın Statüsü Genel Müdürlüğü, KSGM). Its main mission is to promote gender equality in Turkey by developing programs and policies to reduce all forms of gender-based discrimination. On 8 June 2011, the KSGM was restructured as one of the main units under the Ministry for Family and Social Policies. In addition to the KSGM and the Ministry for Family and Social Policies, there are a number of platforms composed of governmental units, civil society actors and stakeholders that are working in the field of gender equality policy.

59. According to, a new measure, 2017 Gender Development Index (GDI), Turkey's GDI value is 0.755 out of 164 countries. This rate placing the country into Group 4 which covers medium-low equality in Human Development Index achievements between women and men.

60. Another tool reflecting gender situation is Gender Inequality Index (GII). Turkey ranks 69th out of 189 countries in terms of gender-based inequalities in three dimensions ? reproductive health, empowerment and economic activity. The GII can be interpreted as the loss in human development due to inequality between female and male achievements in the aforementioned three dimensions (UNDP, 2018). According to UNDP data, female participation in the labour market is 32.4% compared to 71.9% for men. Additional GII data is structured as follows:

	GII value	GII rank	Maternal Mortality Ratio	Adolescent Birth Rate	Female seats in parliament %	Population with at least some secondary education %		Labour force participation rate %	
						Female	Male	Female	Male
Turkey	0.317	69	16	25.8	14.6	44.9	66.0	32.4	71.9

Europe and Central Asia	0.270	-	24	25.5	20.7	78.4	85.9	45.5	70.3
High HDI	0.289	-	38	26.6	22.3	69.5	75.7	55.0	75.5

61. The main income resources conducted in Gediz Basin are agriculture and livestock activities. According to the World Bank data, the rate of female employment in the agriculture sector is 27,9 while this rate for the male is 15,2%. The unemployment rate is considerably high among females which is 13,6 %. This rate is 9,6 for males.

62. Women play an essential role in agricultural production, and make up a substantial part of the agricultural labour force. However, a large number of rural women typically work as unpaid family workers, performing tasks both within their households and household plots. According to ILO estimates (the World Bank), the rate of female family workers is 25,1 and this rate is 4,3 for males. Their contribution is invisible in official statistics and is often undervalued by women themselves as perceived as a continuation of their natural role.

63. Men who work in agriculture have better access than women to business support services, training and education, which contribute to better work opportunities and higher pay. Women in rural areas have less access than men to productive resources and opportunities and thus income. The gender gap is found for many assets, inputs and services ? land, livestock, labor, education, extension and financial services, and technology ? and it imposes costs on the agriculture sector, the broader economy and society as well as on women themselves.

64. With the aim of identifying women?s specific needs, problems and coping strategies in the context of project objectives a gender analysis will be conducted during the PPG process. Gender analysis will be a part of the socio-economic analysis in the project site and consists of different levels. The research process will be holistic. That means each level each other and all levels should be considered together during data collection, coding and data analysis.

65. District level local authorities and village heads (mukhtars) as community leaders will play a key role in reaching women farmers. Women household members of community leaders

will gather a small group of women community members. Focus group discussions and in-depth interviews will be conducted with at least 50 women. The research will be conducted in women's houses. One woman will be interviewed as a representative of a household. Men community members also will be interviewed. Village coffee houses will be the research place for men community members. On the other hand, local businesses such as restaurants, if any, will be other resources to reach community members. The public announcement can be used to reach more community members if needed or approved by local authorities.

66. Women's participation in the decision-making process and their full engagement in project activities will be ensured through specific arrangements. The project will ensure that half of the beneficiaries are women (51%) and their conditions will be considered to organize activities such as specifically designed training in line with their needs, flexible training hours, appropriate timing (considering agricultural seasons) of project activities, their close interaction with women project staff and childcare services (if and when possible). In addition, at least 30% of beneficiary women participate in decision processes during the BPAP and RBMP.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes

closing gender gaps in access to and control over natural resources; Yes

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

67. Representatives of the private sector, mainly land users and women and men farmers including grazing families will be the main partners of this project. They will be direct beneficiaries in the implementation of environmentally friendly agricultural activities, alternative income generation

activities, and not only increase awareness but also will be in enabling the design of the project outcomes. Equal participation of women farmers will be ensured.

68. There are a remarkable number of individuals industries (agricultural and others), organized industry district ones and other small enterprises in several sectors as representatives of the private sector. It is inevitable to keep in touch with them or their representatives, especially for wastewater related issues. Moreover, landowners and farmers are our key partners for agricultural practices and dissemination of innovative approaches especially firstly in the Basin.

5. Risks to Achieving Project Objectives

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

69. The following potential risks and mitigation measures have been identified. These will be reviewed and updated during the project preparatory (PPG) phase.

<i>Risk</i>	<i>Rating</i>	<i>Mitigation Measure</i>
Decrease in project support from the government	Low	The government authorities have fully backed the development of this concept and all concerned government stakeholders will be fully involved in project preparation and implementation to ensure continued support. Moreover, the project fits into national development and environmental priorities.
Climate Change	Medium	During the lifetime of the project, this is probable to come across with effects of climate change on water resources and agricultural resources. As one of the results, a decrease in agricultural productivity is mostly possible in the next decades. The full project will include monitoring and stocktaking on water quantity and quality and agricultural resources for climate change resiliency.
Low institutional capacity at national and local level hampering project progress	Medium	To mitigate this risk, the project design incorporates institutional capacity building measures taking into account the specific needs of stakeholders

<p>Project activities are implemented in a compartmentalized fashion with little integration and coordination with all relevant government departments (for example: unsustainable tourism development activities implemented in project areas affecting the sustainable resource management impacts generated by the project)</p>	<p>Low to Medium</p>	<p>Under component 1, a multi-sectoral coordination and governance model will be established, within and beyond the project context, the model will ensure coordination between all relevant government actors.</p> <p>Consultations have been held with all relevant government departments and this process will continue throughout the project preparation and subsequent implementation to ensure that the project progress and impacts generated do not happen in isolation.</p>
<p>Reluctance of local population to involve and participate effectively in the project activities</p>	<p>Low to Medium</p>	<p>Local communities (through community and civil society representatives) will be involved during the project preparation processes. The project activities, especially livelihood improvement activities under Component 2 and the sustainable impacts generated, will ensure continued interest and participation of local communities</p>
<p>Women's restricted participation in project activities due to agricultural season, patriarchal structure and/or caring responsibilities.</p>	<p>Medium</p>	<p>Project activities and timing for community members will be designed considering women's eligible time and agricultural/grazing season. On the other hand, project experts will closely be working with men community members to increase their awareness of gender equality.</p>
<p>Women's hesitation to participate in project activities due to cultural attitudes.</p>	<p>Medium</p>	<p>Women staff members of the project team will communicate with local women when needed.</p>

COVID-19 Pandemic	Medium	<p>The current pandemic situation will have a significant impact on the implementation of field-based activities if it continues. In order to mitigate this risk, during project preparation, the evolution of the pandemic will be closely monitored to allow a project design resilient to the impacts of this and other similar events. The project will consider the evolution of the pandemic in the design of all its activities and were necessary, a COVID-19 mitigation plan will be developed In addition, the project will build on the efforts of the Turkish governments for Green recovery as described on the project description above.</p> <p>During project preparation, risk will be mitigated by avoiding as much as possible face-to-face meetings. However, when necessary, face-to-face meetings and consultations will be held taking into account all biosecurity measures in line with national and FAOs standards and regulations.</p>
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6. Coordination

Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

70. General Directorate of Water Management under the Ministry of Agriculture and Forestry will manage and deliver the project activities with the following institutions. First, there will be a Project Steering Committee (PSC) to advise on policy decisions and coordinating inter-ministerial support; members of the steering committee will be drawn from line ministries and may include other representation as required. Secondly, the Project Management Unit (PMU) led by a Programme Coordinator will carry out activities on a day-to-day basis, oversees implementation, administration, and performance against implementation plan, budgeting, and reporting; coordinate the national and field level project implementation units.

Coordination with relevant GEF-financed initiatives

71. The project will be tightly aligned with the decision support system for LDN being developed under the *?Contributing to Land Degradation Neutrality (LDN) Target Setting by Demonstrating the LDN Approach in the Upper Sakarya Basin for Scaling up at National Level?* project (GEFID 9586). The project will take advantage of the methodologies and approaches to carry

out a decision support system as well as with the monitoring systems being developed to report on LDN achievement.

72. The project will also take advantage of the improved integration and sustainable landscape-scale management of forest, agricultural and other productive systems to enhance ecosystem services and goods, while also contributing to the buffering of protected areas and maintaining their inter-connectivity, being developed under the **Strengthening the Conservation of Biodiversity and Sustainable Management of Forest Landscapes in Turkey's Kazdağları Region** project (GEFID?..)

73. The project **Integrated approach to the management of forests in Turkey, with a demonstration in high conservation value forests in the Mediterranean region** (UNDP) will allow getting benefit with showing the demonstration of innovative mitigation and sequestration approaches implemented at forest habitat in Turkey.

74. The project will also be directly linked with the **World Bank-funded Turkey Irrigation Modernization Project (TIRP)** which has activities taking place in the eastern part of the Basin. The TIRP supports incremental institutional advancements, which can improve the quality of irrigation service design and delivery, increase social and economic welfare, and enhance resource sustainability and climate resilience of investments. This project proposal will contribute to the implementation of bringing process and capacity improvements such as integrating consultations and community feedback in the irrigation system design, enhanced social and environmental management, piloting the use of renewable energy, developing a systematic program

Cordination with other projects

75. The project funded by FAO-TCP (TCP/TUR/38) on the **Enhancement of soil and fertilizer management in Turkey** aims to promote sustainable management of soil resources for sustainable productivity and decrease of environmental pollution including GHG emissions. This project will contribute to integrated water management by enhancing fertilizer monitoring systems and related soil mapping that will help to improve the watershed management in Gediz River Basin. Moreover, the relevant capacity development program will support the increased awareness of the importance of sustainable soil amendment and its link with the management of water resources.

76. The FAO- TCP project (TCP/TUR/3701) **Integrated Land Use Planning for Food Security with enhancing climate change resilience and ecosystem management** funded under the FAO- Technical Cooperation Program aims to develop an integrated land-use planning approach and

implement it in a pilot area. This project will contribute to raising awareness of relevant stakeholders about the role of land use and management in addressing the problems of land abandonment and efficient land use together with initial steps towards the development of rural community

77. FAO Turkey Partnership Programme (FTPP II) on **Leaving no one behind: empowerment of rural women**, GCP /SEC/018/TUR includes (1) the efforts to increase productivity and food security through the provision of effective rural advisory services allowing women farmers to have equal access to trainings and knowledge-sharing; and (2) an initiative assisting the Syrian refugees, in particular women, to integrate with the host communities by providing trainings to improve agricultural skills to engage in productive activities. This project will contribute to capacity building with a focus on women and youth, to ensure their participation in decision-making processes.

78. FAO Turkey Forestry Partnership Programme (FTFP) **Boosting Restoration, Income, Development, Generating Ecosystem Services** (GCP /INT/340/TUR) aims to catalyze action, support sustainable management and restoration of dryland forests and agrosilvopastoral systems. This project will contribute the compiling, managing, sharing knowledge and good practices, promoting communications and visibility of project activities to the across Africa's Great Green Wall and throughout the global drylands.

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assesments under relevant conventions?

Yes

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

The project will contribute Turkey to fulfill her international and national commitments stated in below highlighted strategy, action plans and conventions.

- National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC
- National Action Program (NAP) under UNCCD
- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD
- National Communications (NC) under UNFCCC
- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD
- Biennial Update Report (BUR) under UNFCCC

- 11th Development Plan of TURKEY 2019-2023
- Ministry of Forestry and Water Affairs? Strategic Plan 2017-2021
- Decisions of Forestry and Water Council 2017
- National River Basin Management Strategy

79. The project is aligned with the following national priorities;

80. 11th Development Plan: Relevant objectives of the Development Plan are ?Protection and development of the water and soil resources? amount and quality, development of a management system that provide sustainable use of the water and soil resources.? ``Integrated basin management strategies, plans and action plans will be realized in an integrated approach in the scope of the conservation, development and sustainable use of the water resources of the basins.? ``Protection measures will be increased to reduce water pollution originated from agricultural activities.``

81. Ministry of Agriculture and Forestry Strategic Plan: The Main objectives of Strategic Plan are ?To ensure the conservation, improvement and sustainable management of water resources?, ?To ensure effective conservation and sustainable management of biological diversity.? This Strategic Plan shapes a common goal for 25 basins of Turkey and decreases the planning hierarchy from up to bottom. But, still, it is needed to downscale the practices especially with projects including demonstrative activities. As this Strategic Plan includes sub-objectives such as sustainable management of water and land resources preparation of sectoral water allocation plans, it is considered to constitute an effective protection-usage balance in Gediz River Basin and disseminate the result in Turkey.

82. National Water Strategy (2019-2023) aims to ; (i) updated and accurate water monitoring system in line with international and international standards (ii) sustainable water management by holistic approach with ensure the balance between the conservation and use of water resources considering quantity, quality and ecosystems management (iii) ensure Sustainable supply-demand balance of water resources considering water quantity, quality, climate change and ecosystem needs for 25 river basins. In this regards, this project will fully contribute to implement this strategy and ensure sustainable management of water resource considering ecosystem needs in the Gediz River Basin which is one of the 25 basin in Turkey

83. National Strategy to achieve LDN: Primary reasons for land degradation in the Gediz basin include inappropriate land use, urbanization, industrialization, tourism and particularly intensive agricultural activity. Erosion has been causing significant problems, particularly in agricultural lands in the basin. Given all these facts, the basin is selected among the hot spots of Turkey in terms of land degradation. The proposed project will support the implementation of the LDN strategies by working with local stakeholders to demonstrate SLM practices that can be upscaled by using co-financing to support the following targets:

LDN Targets in agriculture (Pg 16 of LDN report):

- ? Promotion and supporting soil conservation farming (including building farmer capacity)

- ? Enforcing all relevant articles of Soil Law No. 5403, which sets the rules and principles for determining land and soil resources and their classification, preparing land utilization plans, preventing non-purpose utilization, and defining the tasks and obligations to ensure land and soil preservation.
- ? Expand irrigated area from 6.3m ha to 8.5m ha. Mainstream pressurised irrigation systems
- ? Support and upscale soil and fertilizer analysis, and ensure controlled applications

LDN Targets in Forestry

- ? Reduce the decline in forest areas, in particular support national targets of afforestation and rehabilitation of mine sites
- ? Reduce the declining productivity in forest lands by rehabilitating forest lands, decreasing the number of Forest Crimes, and reducing the area affected by fires.

84. **The 5th National Communication to the UNFCCC:** The communication lists under Forestry measures ??Maximizing sink capacity in the forestry sector?? with objectives of a) increasing carbon sequestered in forested areas by 15% until 2020 b) decreasing deforestation and forest degradation by 20% by 2020. The project?s activities, specifically under Component 2, directly contribute to these objectives.

85. **The National Biodiversity Action Plan (NBSAP 2018-2028).** This updated document establishes 7 National Objectives. The selection of the project implementation area will be aligned to these five objectives and their corresponding activities as follows:

- ? National Objective 1: Pressures and threats on biodiversity and ecosystems will be determined, reduced to the possible lowest level or removed totally.

Action 1.1: Struggle strategies will be continued to be improved against direct or indirect pressures on biological diversity such as habitat loss and degradation, global warming, increase of population, overconsumption of natural resources, genetic erosion and pollution.

This proposal aims at improving the management of the river basin in Gediz preventing the pressures to a biological diversity that will be tackled through the implementation Gediz River Basin Management Plan, a strategy to implement a green belt approach, training of Government staff in best practices concerning landscape restoration and management.

- ? National Objective 2: Biological diversity components (ecosystem, species and genetic variability) will be determined, monitored, and species-specific and ecosystem-based conservation approaches (traditional and modern) will be developed by determining current condition of biodiversity.

Action 2.3: Studies to determine and monitor endemic and endangered species; develop and implement species-specific conservation methods will increasingly be continued.

This proposal will establish and pilot a monitoring system for the river basin. Moreover, it will establish and pilot a monitoring system for rehabilitated forests. As a part of the RBMP to be implemented, the proposal will establish biodiversity protection measures.

? National Objective 3: Conservation and sustainable management of biodiversity of areas exposed to agriculture, forestry and fishing activities in the country will be ensured.

Action 3.1. Conservation and sustainable management of biodiversity creating sources for industries of agriculture, forest, food and medicine will be ensured.

This proposal will implement measures to improve sustainable financing of degraded forests such as investing in the sustainable management of restored forests. Furthermore, income-generating activities, such as ecotourism, will be implemented.

? National Objective 4: Awareness of the public and administrators on ecosystem services will be raised, benefits from ecosystem services will be increased and sustainable biodiversity management will be ensured.

Objective 4.1. Awareness of ecosystem services will be raised among public and private sectors, and training of specialists will be ensured.

This proposal will include training Government staff (at least 50 govt. staff and 200 local stakeholders) at the General Directorate Water Management Division level, and other local stakeholders in best practices in biodiversity conservation and management. These practices include biodiversity monitoring, carbon measuring and monitoring as well as improved harvesting and processing techniques.

? National Objective 5. Rehabilitation and restoration of ecosystems damaged due to different reasons will be ensured, measures to prevent damage to healthy ecosystems will be developed and legislative gaps thereon will be fulfilled.

Action 5.1. Through improving ecosystem-based models, rehabilitation and restoration of degraded ecosystems (marine, forest, wetland etc.) will be provided, monitoring and inspection thereof will be performed.

This proposal will implement sustainable measures that aim to restore 5 km of degraded waterfront and riparian zone-habitats restored along the river basin

8. Knowledge Management

Outline the knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

86. The project will strengthen existing institutional capacities within Turkey in PA management and LDN with a strong emphasis on sustainably managed landscapes. At the local level, the Project is

designed to enhance the capacity of local authorities and communities to access new knowledge and implement best management practices in river basin management and SLM to reduce the pressures on their key ecosystems. These capacities will be sustained through a strengthened national coordination platform and continued outreach and dissemination of good practices and management advice (Component 1 and 3). The experiences are expected to be upscaled to the national protected area system. Opportunities for scaling up best practices will also be explored in the context of south-south cooperation, particularly on sharing of experiences with other countries and the UNCCD and UNCBD, especially in Central Asia. The outputs of this project can be disseminated through the Ankara Initiative as well as through other established channels.

87. During project preparation, A communications specialist will be hired to understand the needs and knowledge gaps in the target audience in light of the project objectives. The consultant will prepare a comprehensive communications strategy based on the understanding of the target audience, objectives of the project and the barriers to achieving the objectives. This strategy will outline the key messages, which communication tools will be used and why, how many people will it reach and the periodicity of the communication. It will also outline a methodology to gather the target audience's response to the communication which will give way to further evolving the communication strategy in light of what works and what doesn't.

88. Based on the project baseline, the current behavior of the target audience will be identified. The barriers will allow the project preparation team to identify the incentive or knowledge required to change the current behavior to the desired behavior. The project will address these needs through project activities like developing knowledge products in regional languages (Component 3), working with the local government to provide better access to knowledge resources (Component 1 and 3) and developing products to support the capacity building plan, among others.

9. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
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Low

Measures to address identified risks and impacts

Provide preliminary information on the types and levels of risk classifications/ratings of any identified environmental and social risks and potential impacts associated with the project (considering the GEF ESS Minimum Standards) and describe measures to address these risks during the project design.

*In line with FAO's Environmental and Social Safeguards, the project has been screened against Environmental and Social risks and rated as **low risk** (see certification in annex) . No FAO safeguards were triggered. The risk level will be further re-confirmed at PPG in line following FAO's stakeholder engagement processes. The Agency will make sure that all mitigation measures vis a vis any potential adverse impact are duly considered in the ceo-endorsement package.*

Supporting Documents

Upload available ESS supporting documents.

Title	Submitted
CC screening_Turkey_Gediz_19_02	
Risk Certification	

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And GEF Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Akif ?zkaldi	Deputy Minister	Ministry of Agriculture and Forestry	7/27/2020

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place

Project site

The project activities will take place within the Gediz River Basin inside the western Anatolia along the Aegean Sea, neighboring Izmir. Kutahya, Usak and Manisa are other provinces inside the basin and encompasses about 1.703.394,000 ha. The proposed project site is presented below under Figure 2. The Gediz Basin is part of the Aegean region and the Mediterranean rainfall regimes. It has hot dry summers and cool winters. The average annual rainfall amount is some 500 to 530 mm, but extremes of 300 mm and 850 mm also occur. Precipitation is concentrated in the winter period. Precipitation in the basin ranges from over 1 000 mm per year in the mountains to 500 mm per year near the Aegean coast. In the mountains the precipitation mainly falls in forms of snow

50% of the basin (8.559.829 ha) is agricultural lands, 47% (7.980.508 ha) of forest and semi-natural areas, and 2% (316.015 ha) of the city that is the modified artificially by human. In the basin, surface waters cover approximately 1% (129,134 ha) of area, while wetlands occupy only 50,384 ha. The main water resource is Gediz River and length of the river is 275 km. There are two other natural wetlands, lakes (G?lmarmara ve G?lc?k) is being in the basin. Near the Aegean See there is a bird paradise inside the basin, Gediz Delta called Ku? Cenneti. This land is an important wetland area and RAMSAR site which is significant for birds and some other wetland species and has been established in 1997. Delta covers 40.000 ha, including 20,400 ha of wetland. It is located 25 km to the west of Izmir harbor, and forms the main feeding and breeding location within the delta, although the birds use the entire delta as a habitat. The freshwater area of Ku? Cenneti is estimated to be 1 100 ha. It is 4th biggest delta in Turkey in terms of size. Protected areas in the basin is given in Table 2.

<i>Name</i>	<i>Size (ha)</i>	<i>Conservation Category</i>
Gediz Delta	40.000	RAMSAR Site
Spil Mountain	6.801	National Park
Foca Special Environment Conservation Area	22.700	Special Environment Conservation Area
Marmara Lake (G?lmarmara)	1.100	Wetland
Golcuk Lake		Wetland



Figure 3. Location of Gediz River Basin (Proposed project borders)

Half of the lands of the basin use is for agricultural purpose. Big partition of remain half covers forest and natural areas. Wetlands and saltmarshes cover only 2% of the total area in the basin.

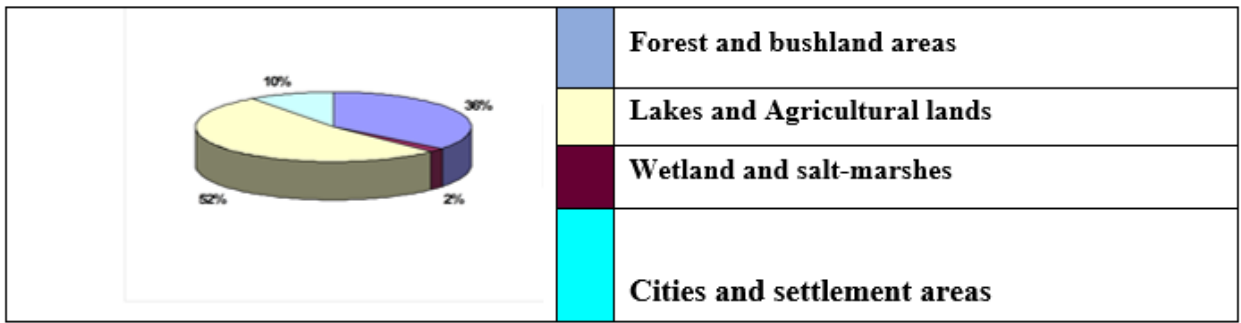


Figure 4. Land use of the basin

Gediz River is the main water source of the basin. Gediz River flows from the northeast mountain area to the Aegean Sea. On the way three more river streams join the Gediz River. From the southeast Alasehir River flows in, from the northern main valley Gordes River is joining and Kum?ay River is joining from the Northwest. Main crops in Gediz basin which is directly depend of the water and under the irrigation schemes are cotton and grapes. Irrigation schemes have different cropping pattern depending on their location in the basin. Within an irrigation scheme the cropping pattern also changes per year for example triggered by market prices. In general cotton is mainly cultivated in the delta and towards the mountains the area of grape orchards is increasing. Other crops growing in the irrigation schemes are summer wheat and vegetables. Non-irrigated crops are cultivated in the catchment areas in the mountains; crops include wheat, barley, fruits and vegetables.